

## DEPARTMENT OF TRANSPORTATION

Research and Special Programs  
Administration

## 49 CFR Part 173

(Docket HM-193, Amt. No. 173-188)

Tritium and Carbon-14; Low Specific  
Activity Radioactive Materials  
Transported for Disposal or Recovery

AGENCY: Materials Transportation

Bureau, Research and Special Programs  
Administration, DOT.

ACTION: Final rule.

**SUMMARY:** The Materials Transportation Bureau (MTB) is amending § 173.425 of the Hazardous Materials Regulations (HMR) to except certain low specific activity radioactive materials containing tritium (hydrogen-3) or carbon-14 from most requirements of the HMR when the materials are being transported for disposal or reclamation. This amendment allows the shipment of waste materials such as scintillation counting media, animal carcasses and tissue containing not more than 0.05 microcuries per gram (1.9 megabecquerels per kilogram) of tritium or carbon-14 without further consideration of their radioactive hazards. This action is consistent with the Nuclear Regulatory Commission (NRC) provisions specified in new section 20.306, Title 10, Code of Federal Regulations relating to the disposal by NRC licensees of tritium and carbon-14 low specific activity radioactive materials.

**EFFECTIVE DATE:** These amendments are effective August 1, 1985. However, compliance with the regulations as amended herein is authorized immediately.

**FOR FURTHER INFORMATION CONTACT:** R.R. Rawl, Office of Hazardous Materials Regulation, Materials Transportation Bureau, 400 Seventh Street, SW., Washington, D.C. 20590, (202) 426-2313.

## SUPPLEMENTARY INFORMATION:

## I. Background

On August 23, 1984, MTB published a notice of proposed rulemaking (Notice 84-8) in the *Federal Register* (49 FR 33469). That notice proposed allowing materials containing low levels of tritium or carbon-14 to be transported without regard to their radioactive properties. The proposal would relax requirements of the HMR for transportation to be consistent with NRC provisions in 10 CFR 20.306 for

disposal of tritium and carbon-14 containing wastes that have specific activities of 0.05 microcuries per gram (1.9 megabecquerels per kilogram) or less.

The requirements of § 173.425 address most shipments of low-level radioactive waste transported from NRC or Agreement State licensees to licensed disposal facilities. Medical, biomedical, and related research institutions generate relatively large volumes of tritium and carbon-14 contaminated wastes that meet the definition of low specific activity radioactive material (§ 173.403(n)(4)(iii)). Much of the waste from these institutions is several orders of magnitude below the maximum activity level limit established for low specific activity radioactive materials. However, they still exceed the statutory definition of radioactive materials (49 U.S.C. 1807) which includes any material having a specific activity greater than 0.002 microcuries per gram (74 kilobecquerels per kilogram) of material.

Most scintillation media wastes also meet the definition of a flammable liquid and are suspected to be carcinogens as well. Animal carcasses and tissues are not classified as hazardous materials *per se* but their disposal is often times handled in the same manner as hazardous materials. The flammability of the very low specific activity scintillation media is considered by MTB to present a greater hazard in transportation than their radiotoxicity. The proposal was, therefore, to require that very low specific activity scintillation media be packaged, marked, labeled and otherwise prepared for shipment and transported on the basis of their flammability or another acute hazard, if present. Animal carcasses and tissues containing low levels of tritium or carbon-14 which do not meet the definition of another hazard class could be transported as materials not subject to the HMR.

The NRC investigation of problems associated with these low activity wastes from the biomedical community resulted in rules documents published in the *Federal Register* on October 8, 1980 (45 FR 67016) for the proposed rule, and March 11, 1981 (46 FR 16230) for the final rule. As adopted, the new § 20.306 in 10 CFR allows licensees greater latitude in the disposal of certain wastes containing low concentrations of tritium and carbon-14. In essence, if the specific activity of animal carcasses and tissues and liquid scintillation media is not greater than 0.05  $\mu\text{Ci/g}$  (1.9 MBq/kg) they may be disposed of without regard to the radioactive nature of the materials. When compared to other

radionuclides, the fundamentally lower radiation hazards of tritium and carbon-14 allow these low activity wastes to be disposed of safely when emphasis is placed on the other hazardous or noxious properties presented by the materials.

## II. Comments Received

MTB received comments on the proposed rule change from nine companies and one individual. All but one of the comments expressed a position and were supportive of the proposal. Several encouraged expansion of the scope of the change and some raised specific points as needing clarification.

Several commenters pointed out that the term "disposal" is used differently by the NRC and Environmental Protection Agency. In some cases "disposals" is used in a narrow manner and refers only to land burial or incineration. In other usages "disposal" is expanded to include beneficial reuse. The commenters encouraged MTB to ensure that the scope of the final rule incorporates the broader application of the term.

The NRC has determined that these materials may meet their ultimate disposition without regard to their radioactivity. MTB further believes that transportation of these waste materials presents less of a hazard than their disposition. Consequently, the radiological safety aspects of their transportation is assured regardless of their ultimate method of disposition. MTB agrees that transport of these materials for beneficial reuse should be included and so the words "or recovery" are added to "disposal" in § 173.425(d).

One commenter believed that the proposed rule implied that these low specific activity (less than 0.05  $\mu\text{Ci/g}$  or 1.9 MBq/kg) must be transported in accordance with § 173.425 in all situations. MTB would like to clarify that this is not the case.

Disregarding for a moment any other hazardous properties of these materials, there are several different situations which may apply to a low specific activity material. If the material has a specific activity of 0.002  $\mu\text{Ci/g}$  (74 kBq/kg) or less, then it is not regulated as radioactive by the HMR. If the material has a high enough specific activity to be regulated but the total activity in each package does not exceed 2.0 mCi (74 MBq) of tritium or 6.0 mCi (222 MBq) of carbon-14, then the package could be shipped as a "limited quantity" in accordance with §§ 173.421 and 173.421-1 (multiple hazard radioactive materials in this category would be governed by

§ 173.421-2). If the material exceeds both the threshold specific activity for regulation in transportation and the total activity limit for limited quantities, *then* the material would be transported in accordance with § 173.425. There is also the option of packaging and transporting these materials as Type A quantities (§ 173.415).

It should also be noted that a recent MTB rulemaking (Docket HM-139C) has been published (50 FR 11700) which allows yet another option for shipping flammable scintillation media waste such as xylene, toluene and acetone containing low levels of tritium and carbon-14. Since the new § 173.425(d) allows disregard of the radioactive nature of the material, it can be shipped in accordance with the recently added § 173.12. Alternatively, a shipper of these materials could prepare them for transportation in accordance with §§ 173.118 or 173.119 of the HMR.

One commenter suggested increasing the number of radionuclides which would be covered by this rule. MTB is relying, in part, on the regulatory evaluation performed by the NRC in their earlier rulemaking action. Since the NRC action was specifically limited to tritium and carbon-14, MTB is limiting its actions to these radionuclides as well. If the NRC adds other radionuclides to CFR 20.306, they would automatically be incorporated into the provisions of this final rule since § 173.425(d) refers generically to the NRC requirement.

One commenter questioned whether or not facilities would be allowed to incinerate the low specific activity (less than 0.05  $\mu\text{Ci/g}$  or 1.9 MBq/kg) tritium and carbon-14 wastes. This rulemaking has absolutely no effect on the Federal, State or local requirements which govern acceptable techniques for disposal or processing. The licensing or permitting of these operations are not under the jurisdiction of DOT. This rulemaking only relaxes the regulatory requirements for transportation in the course of disposal or recovery of the materials.

### III. Administrative Notices

#### A. Executive Order 12291

The MTB has determined that the effect of this final rule will not meet the criteria specified in section 1(b) of Executive Order 12291 and is, therefore, not a major rule. This is not a significant rule under DOT regulatory procedures (44 FR 11034) and requires neither a Regulatory Impact Analysis, nor an environmental impact statement under the National Environmental Policy Act

(49 U.S.C. 4321 et seq.) A regulatory evaluation is available for review in the Docket.

#### B. Impact on Small Entities

Based on limited information concerning size and nature of entities likely affected, I certify this final rule will not, as promulgated, have a significant economic impact on a substantial number of small entities under criteria of the Regulatory Flexibility Act.

#### List of Subjects in 49 CFR Part 173

Hazardous materials transportation.

In consideration of the foregoing, Part 173 of Title 49, Code of Federal Regulations is amended as follows:

#### PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

1. The authority citation for Part 173 continues to read in part as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1808; 49 CFR 1.53(e). \* \* \*

2. In 173.425, paragraph (d) is added to read as follows:

#### § 173.425 Transport requirements for low specific activity (LSA) radioactive materials.

\* \* \* \* \*

(d) Except for transportation by aircraft, low specific activity material that conforms with the provisions specified in 10 CFR 20.306 is excepted from all requirements of this subchapter pertaining to radio-active materials when offered for transportation for disposal or recovery. A material which meets the definition of another hazard class is subject to the provisions of this subchapter relating to that hazard class.

Issued in Washington, D.C., on May 31, 1985.

L.D. Santman,

Director, Materials Transportation Bureau.

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